SAMSUNG

LCD TV

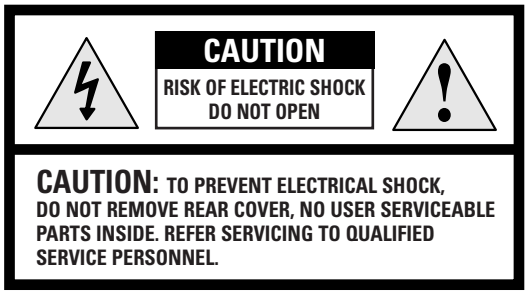
LS15N13W
LS17N13W

Owner's Instructions

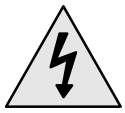
Before operating the unit,
please read this manual thoroughly,
and retain it for future reference.

ON-SCREEN MENUS
PC DISPLAY
PICTURE IN PICTURE (PIP)
TELETEXT

Caution


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO PREVENT ELECTRICAL SHOCK, DO NOT REMOVE REAR COVER, NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash and arrow head within the triangle is a warning sign alerting you of "dangerous voltage" inside the product.



The exclamation point within the triangle is a warning sign alerting you of important instructions accompanying the product.

WARNING: **TO PREVENT DAMAGE WHICH MAY RESULT IN FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

☛ ***The main voltage is indicated on the rear of your set and the frequency is 50 or 60 Hz.***

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Plug and Play

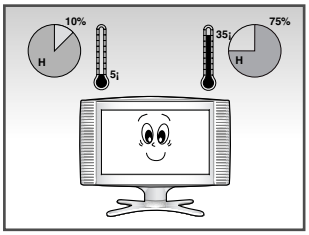
The adoption of the new ***VESA®*** Plug and Play solution eliminates complicated and time consuming setup. It allows you to install your set in a Plug and Play compatible system without the usual hassles and confusion. Your computer system can easily identify and configure itself for use with your set.
Your set automatically tells the computer system its **E**xtended **D**isplay **I**dentification **D**ata (EDID) using **D**isplay **D**ata **C**hannel (DDC) protocols so the computer system can automatically configure itself to use your set. If your PC system needs a monitor driver, install0 monitor driver contained on the accompanied CD according to the operating system your computer uses. For more information, refer to the driver installation instructions included with your CD package.

PowerSaver

This set is **EPA ENERGY STAR®** compliant and **NUTEK** compliant when used with a computer equipped with **VESA DPMS** functionality. For energy conservation, turn your set Off when you are not using it or when leaving it unattended for long periods.

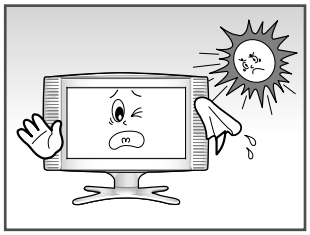
Safety Instructions

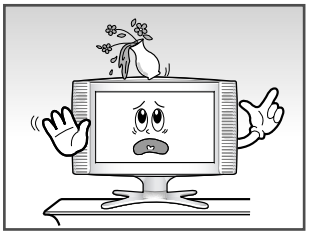
These illustrations represent precautions concerning your TV.



◀ Do NOT expose the TV to extreme temperature conditions or to extreme humidity conditions.

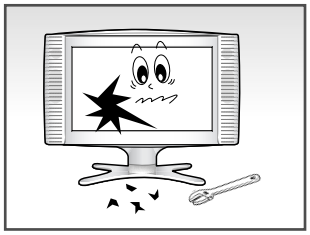
Do NOT expose the TV to direct sunlight. ▶

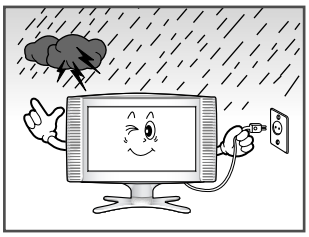




◀ Do NOT expose the TV to any liquids.

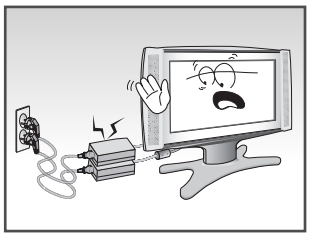
If the TV is broken, do not try to repair it yourself. Contact qualified service personnel. ▶





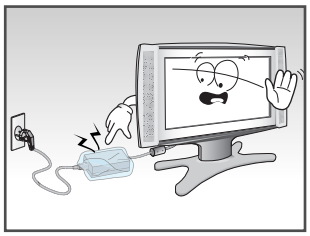
◀ During a storm conditions (especially when there is lightning) unplug the TV from the mains socket and aerial.

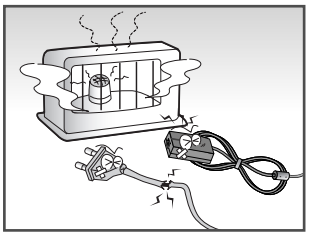
Keep all power adaptors apart. Possible fire hazard. ▶



◀ Always keep the power adaptor in a well-ventilated area.

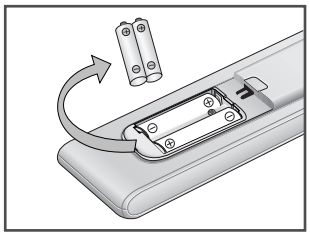
Remove and discard the plastic cover from the power adaptor before use. Possible fire hazard. ▶





◀ Keep the power adaptor away from any other heater. Possible fire hazard.

If the remote control is not used for a long period of time, remove the batteries and store it in a cool, dry place. ▶



THIS DEVICE IS NOT FOR USE IN INDUSTRIAL ENVIRONMENTS

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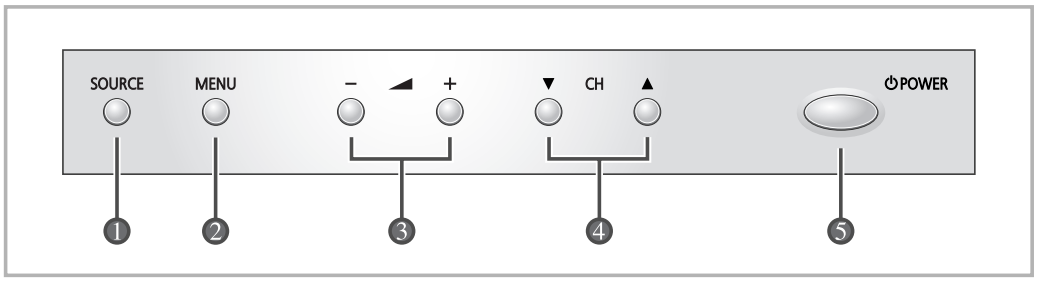
Symbols

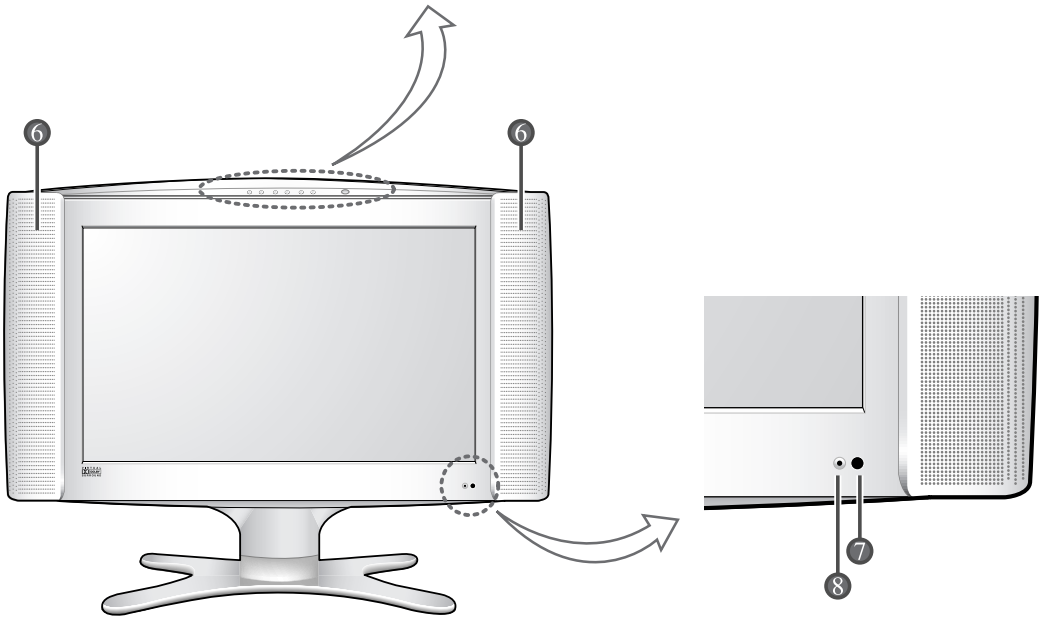
Press

Important

Note

Viewing the Control Panel





❶ **SOURCE**
Displays a menu of all of the available input sources (TV, VIDEO, S-VIDEO, DVD(Component1), DTV(Component2), PC).

❷ **MENU**
Opens the OSD and selects the function.

❸ **– +**
Moves the selector left or right on the OSD. Increases or decreases the level of audio volume and the values of the selected function.

❹ **▼ CH ▲**
Moves the selector up or down on the OSD. Increases or decreases the channel number. Switches on the television when it is in Standby mode.

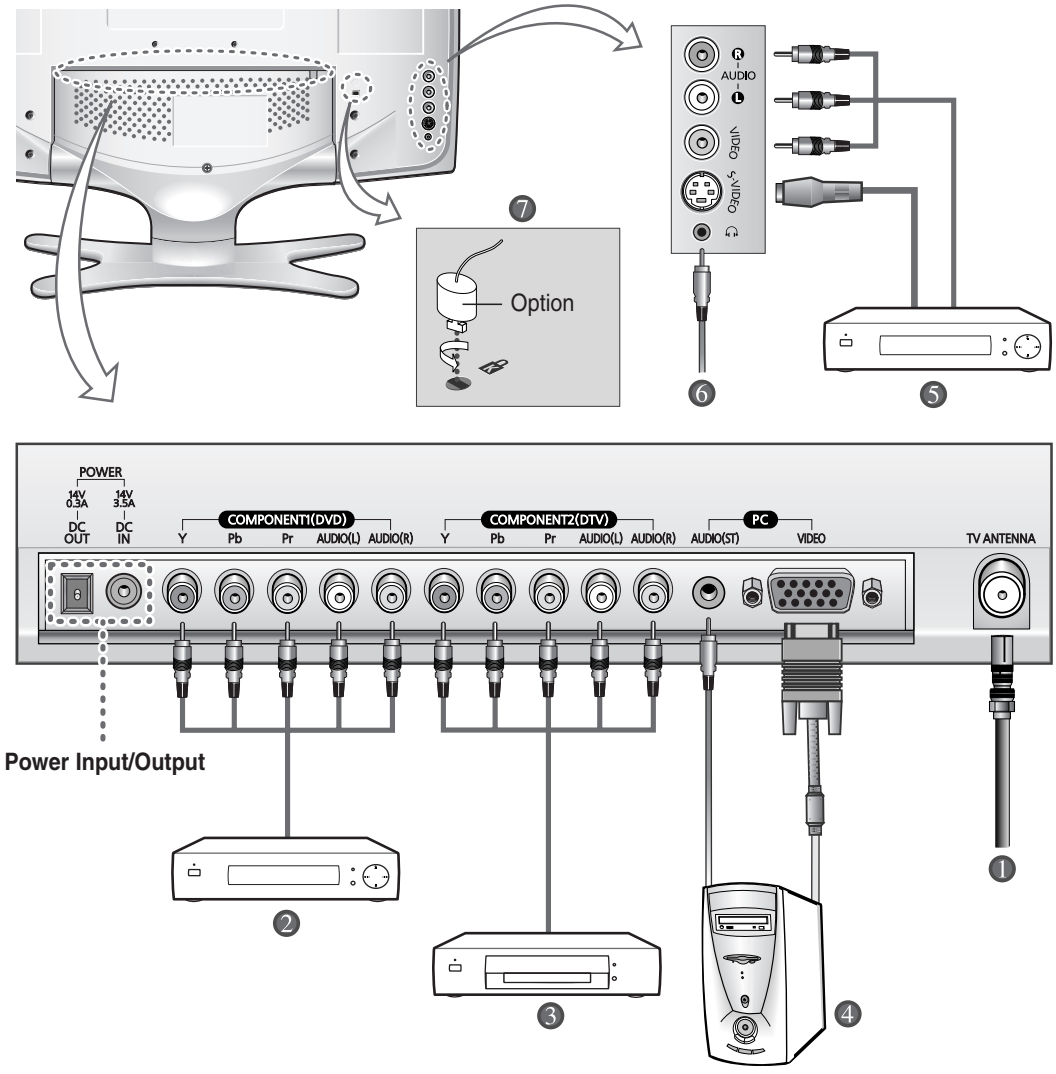
❺ **Power**
Turns ON/OFF the TV.

❻ Speakers

❼ Remote control sensor

❽ Stand-by indicator

Viewing the Connection Panel (continued)



☛ Whenever you connect an audio or video system to your television, ensure that all elements are switched off. Refer to the documentation supplied with your equipment for detailed connection instructions and associated safety precautions.

Viewing the Connection Panel

❶ ***Connecting an Aerial or Cable Television Network***

To view television channels correctly, a signal must be received by the television from one of the following sources:

- An outdoor aerial
- A cable television network
- A satellite network

❷ ***Connecting DVD (or VCR)***

- Connect the RCA Cable to “AUDIO(L)” and “AUDIO(R)” on the rear of your television and the other end to “Audio Out” connector of the DVD (or VCR).
- Connect the RCA Cable to “Y”, “Pb”, and “Pr” on the rear of your television and the other end to “Video Out” connector of the DVD (or VCR).

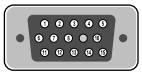
❸ ***Connecting DTV Set-Top Box***

- Connect the RCA Cable to “AUDIO(L)” and “AUDIO(R)” on the rear of your television and the other end to “Audio Out” connector of the DTV Set-Top Box.
- Connect the RCA Cable to “Y”, “Pb”, and “Pr” on the rear of your television and the other end to “Video Out” connector of the DTV Set-Top Box.
- If you wish to connect both the DTV Set-Top Box and DVD (or VCR), you should connect the DTV Set-Top Box to the DVD (or VCR) and connect the DVD (or VCR) to your television.

❹ ***Connecting Computer***

- Connect the 15 Pin D-SUB connector to the PC video connector.
- Connect the stereo audio cable to ”Audio(ST)” on the rear of your television and the other end to “Audio Out” of the sound card on your computer.

➢ **15 Pin D-SUB connector**



Pin	Separate H/V
1	Red (R)
2	Green (G)
3	Blue (B)
4	Grounding
5	Grounding (DDC)
6	Red (R) Grounding
7	Green (G) Grounding
8	Blue (B) Grounding
9	No connection
10	Sync Grounding
11	Grounding
12	Data (DDC)
13	Horizontal sync.
14	Vertical sync.
15	Clock (DDC)

Viewing the Connection Panel

❺ *Connecting External A/V Devices*

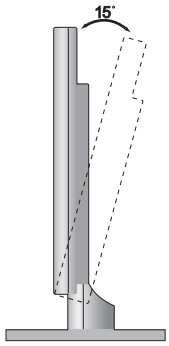
- Connect RCA or S-VIDEO cable to an appropriate external A/V device such as VCR, DVD, or Camcorder.
- Connect RCA audio cables to “AUDIO(L)” and “AUDIO(R)” on the rear of your television and the other ends to corresponding audio out connectors on the A/V device.
- Headphone may be connected to the headphone output (❻) on the rear of your television. *While the headphone is connected, the sound from the built-in speakers will be disabled.*

❼ *Kensington Slot*

- This television has been designed to apply a burglarproof lock.

➢ *Retractable Stand*

Tilt the screen until you feel comfortable. The maximum tilt angle is 15 degree to the backward direction. Please do not tilt the television other than specified range. **Excessive force to tilt the television other than specified range may give permanent damage to the mechanical part of the stand.**



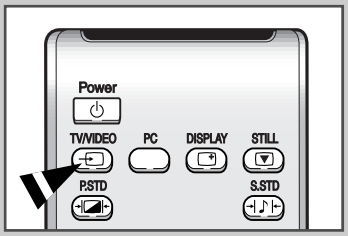
Viewing Pictures From External Sources

Once you have connected up your various audio and video systems, you can view the different sources by selecting the appropriate input.

1 Check that all the necessary connections have been made (refer to pages 8 and 9 for further details).

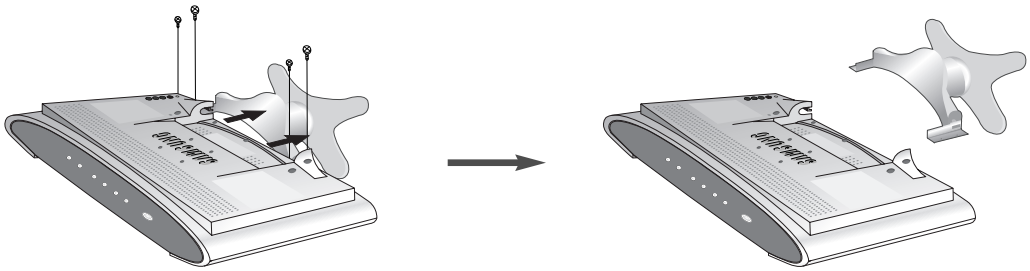
2 Switch your television on and if necessary, press the **TV/VIDEO** button repeatedly. The input sources are displayed in the following order:

TV – **VIDEO** – **S-VIDEO** – **COMP1** (DVD) – **COMP2** (DTV).



Attaching a Wall or Arm Mounting Device

This television supports VESA mounting standard for use with various VESA mounting devices. To install any VESA mounting device, please follow the instructions given.

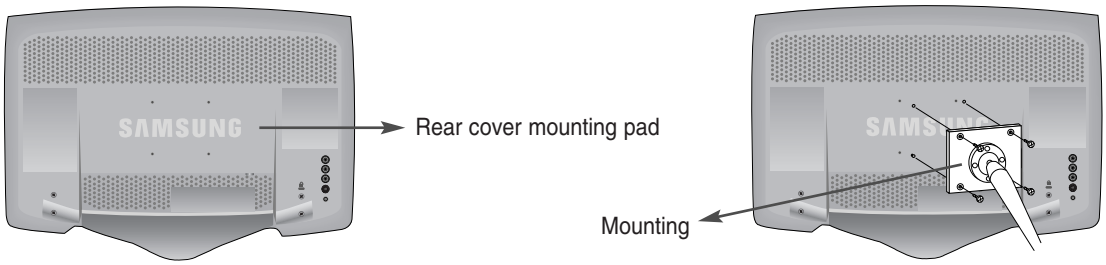


(A) **(B)**

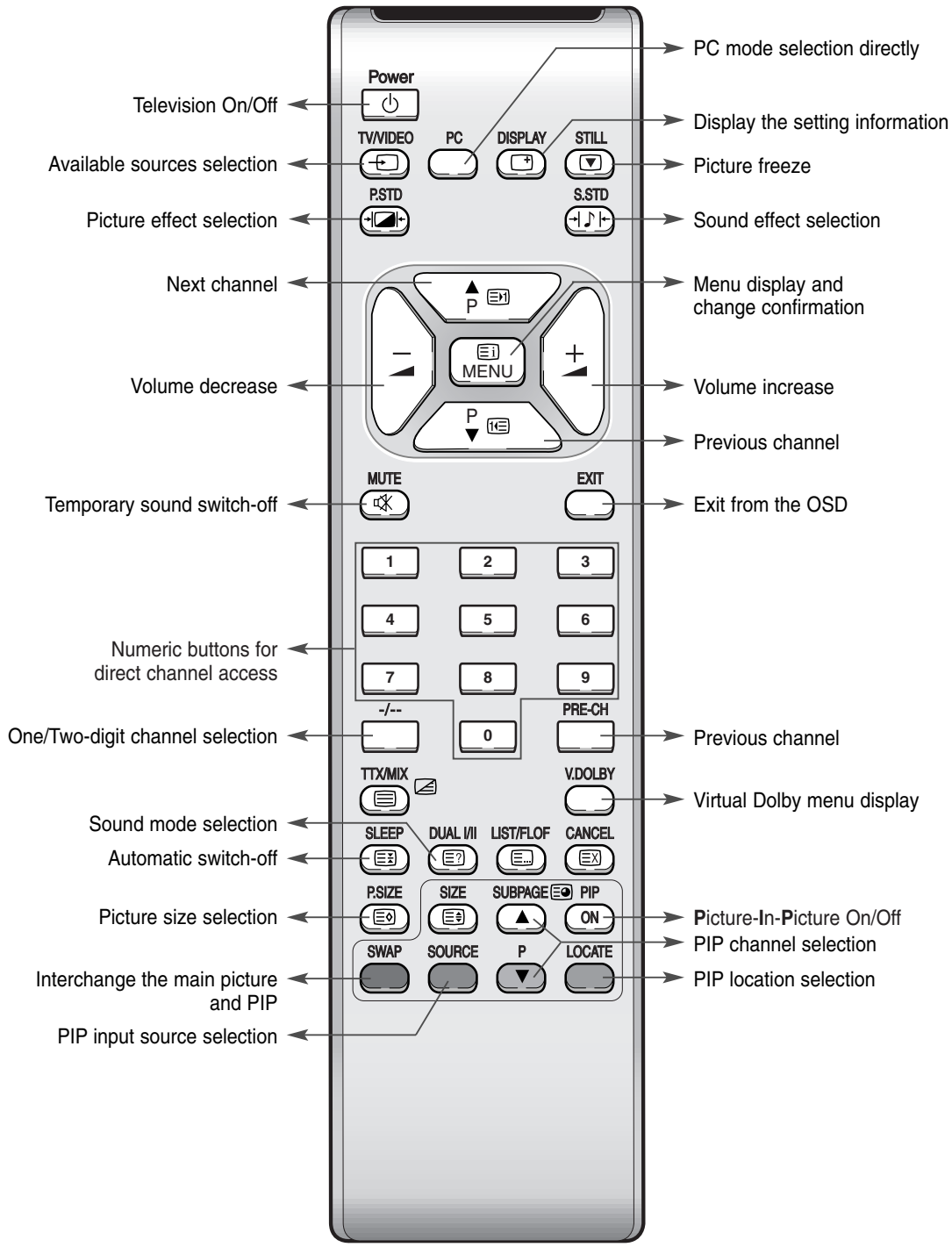
1	Lay the television face-down on a flat surface with a cushion or other soft materials to protect the screen.
2	Remove all cable connected on the television.
3	Remove the four screws and then remove the Stand from the television.
4	Connect all cable you removed at step 2.
5	Now you are ready to install **Wall/Arm mounting device** depending on your applications.

Installing VESA Compliant Mounting Device

Align the mounting interface pad with the holes in the rear cover mounting pad and secure it with the four screws that came with the arm-type base, wall mount hanger or other bases.

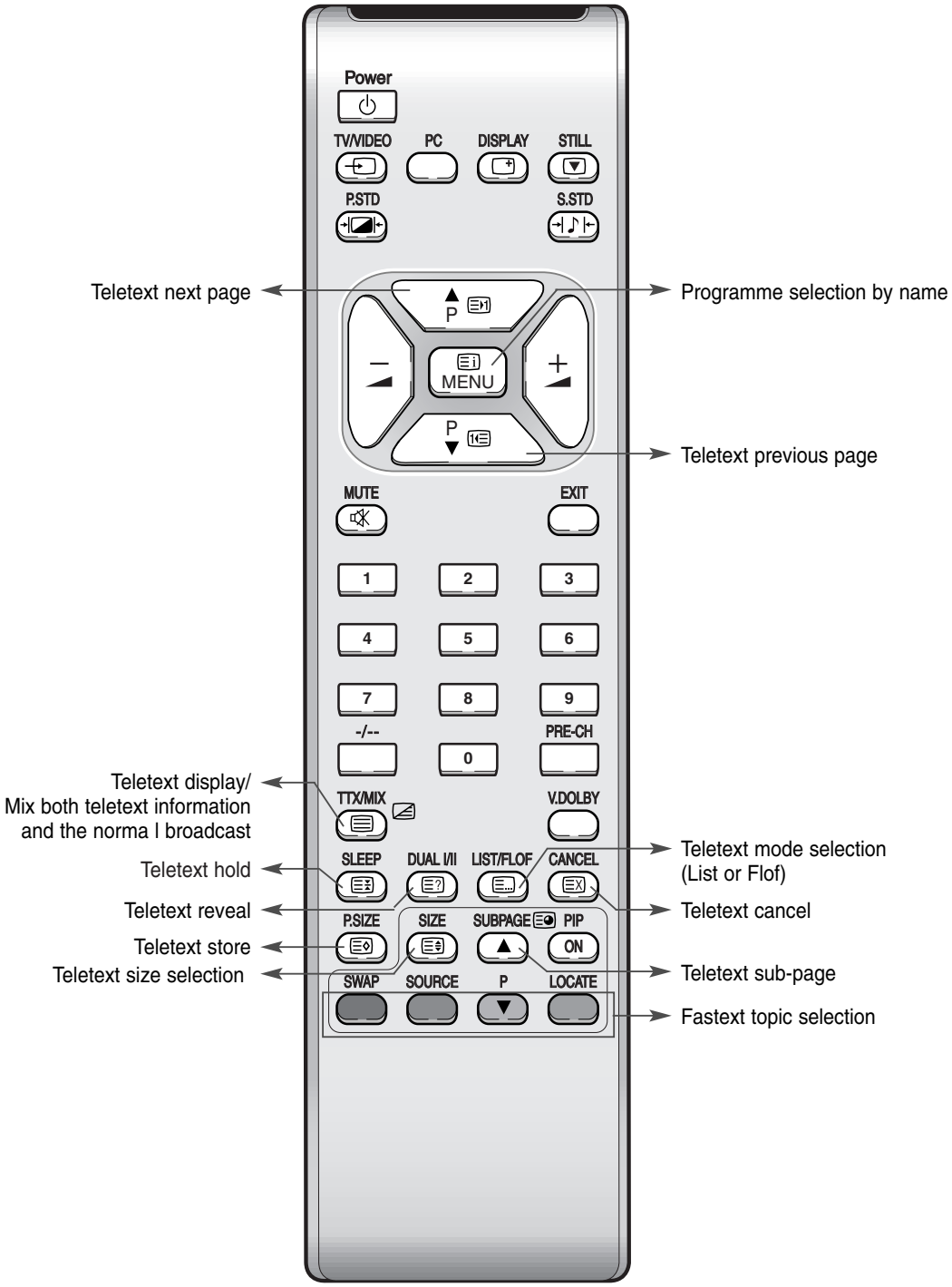


Viewing the Remote Control (All Functions Except Teletext)

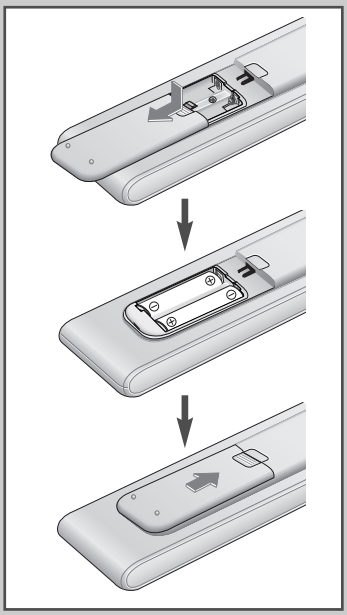


➢ The performance of the remote control may be affected by bright light.

Viewing the Remote Control (Teletext Functions)



Inserting the Batteries in the Remote Control



You must insert or replace the batteries in the remote control when you:

- ***Purchase your television***
- ***Find that the remote control is no longer operating correctly***

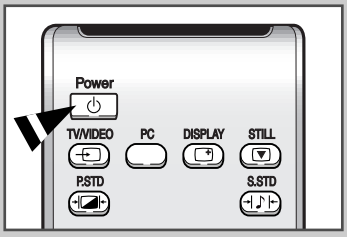
1 Remove the cover on the rear of the remote control by pressing the symbol downwards and then pulling firmly to remove it.

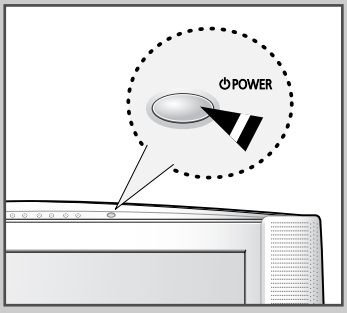
2 Insert two R03, UM4, "AAA" 1.5V or equivalent batteries taking care to respect the polarities:
- **+** on the battery against **+** on the remote control
- **–** on the battery against **–** on the remote control

3 Replace the cover by aligning it with the base of the remote control and pressing it back into place.

➢ Do not mix battery types, i.e. alkaline and monganese.

Switching On and Off





The mains lead is attached to the rear of your television.

1 Plug the mains lead into an appropriate socket.
Result: A green Standby indicator appears on the front of your television.

2 Press the **POWER** (⏻) button.
Result: The screen is turned on and a green Standby indicator disappears on the front of your television.

Your television can be placed in Standby mode, in order to reduce the power consumption.

The Standby mode can be useful when you wish to interrupt viewing temporarily (during a meal, for example).

1 Press the **POWER** (⏻) button.
Result: The screen is turned off and a green Standby indicator appears on the front of your television.

2 To switch your television back on, simply press the **POWER** (⏻) button again.

➢ Do not leave your television in Standby mode for long periods of time (when you are away on holiday, for example). Turn your television off by unplugging from the mains and aerial.

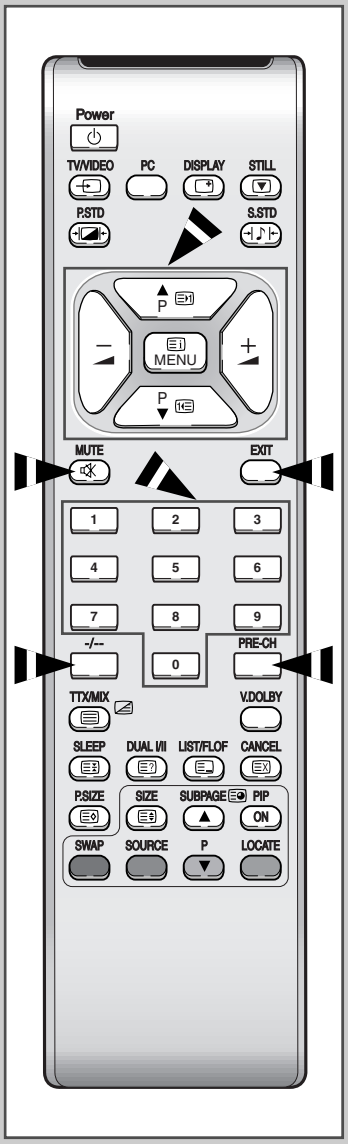
Becoming Familiar with the Remote Control

The remote control is used mainly to:

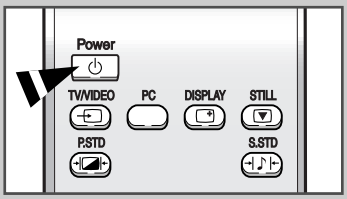
- ***Change channels and adjust the volume***
- ***Set up your television using the on-screen menu system***

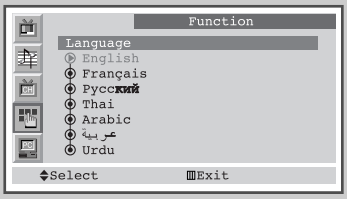
The following table presents the most frequently used buttons and their functions.

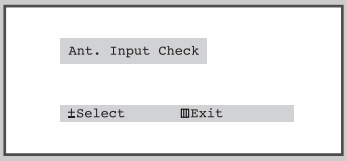
Button	Viewing Function	Menu Function
▲ P	Used to display the next stored channel.	Used to select the previous menu option.
P ▼	Used to display the previous stored channel.	Used to select the next menu option.
PRE-CH	Used to switch repeatedly between the last two channels displayed. (**PRE-CH**; Previous Channel)	
0 to 9	Used to display the corresponding channels.	
-/--	Used to select a channel numbered ten or over. Press this button, and the "**--**" symbol is displayed. Enter the two-digit channel number.	
—	Used to decrease the volume.	Used to... ◆ Display a submenu containing selections for the current menu option. ◆ Search forwards manually for channels ◆ Reduce a menu option value.
+	Used to increase the volume.	Used to... ◆ Display a submenu containing selections for the current menu option. ◆ Search backwards manually for channels ◆ Increase a menu option value.
MUTE	Used to switch the sound off temporarily. ➢ To turn the sound back on, press this button again, or press the – or + button.	
MENU	Used to display the on-screen menu system.	Used to return to the previous menu or normal viewing.
EXIT	Used to exit from the menu system and return to normal viewing directly.	

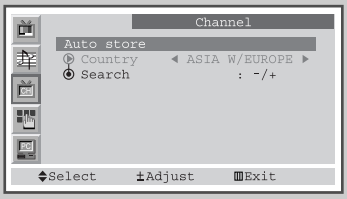


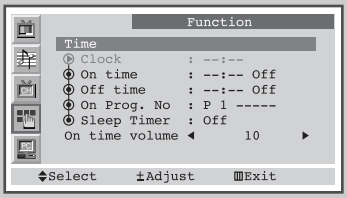
Plug and Play

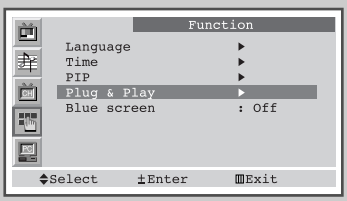












When the television is initially powered on, three basic customer settings proceed automatically and subsequently: setting the language, channel and clock.

1 If the television is in Standby mode, press the **POWER** (⏻) button.

Result: The message **`Plug & Play`** is displayed. It flickers for a little while and then **`Language`** menu is automatically displayed.

2 Select the appropriate language by pressing the **P▼** or **P▲** button.

3 Press the **MENU** button to enter the language.

Result: The **`Ant. Input Check`** is displayed.

3 Make sure that the antenna is connected to the television. Press the **– ** or **+** button.

Result: The **`Auto store`** menu is displayed with **`Country`** is selected.

4 Select your area by pressing the **–** or **+** button. To search the channels, select **`Search`** by pressing the **P▼** or **P▲** button, and then press the **–** or **+** button. Press the **MENU** button to stop the search.

Result: The **`Time`** menu is displayed with **`Clock`** is selected.

➢ Refer to “Storing Channels Automatically” on page 14.

5 Press the **–** or **+** button to move to the hour or minute. Set the hour or minute by pressing the **P▼** or **P▲** button.

➢ Refer to “Setting and Displaying the Current Time” on page 30.

6 When you have finished, press the **MENU** button.

Result: The message **`Enjoy Your Watching`** is displayed, and then the channel which has been stored will be activated.

7 **If you want to reset this feature...**

1. Press the **MENU** button.
   Result: The main menu is displayed.
2. Press the **P▼** or **P▲** button to select the **`Function`**.
   Result: The options available in the **`Function`** group are displayed.
3. Press the **–** or **+** button.
4. Press the **P▼** or **P▲** button to select the **`Plug & Play`**. Press the **–** or **+** button.
   Result: This feature starts with the message **`Plug & Play`** is displayed.

Choosing Your Language

When you start using your television for the first time, you must select the language which will be used for displaying menus and indications.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Function**.

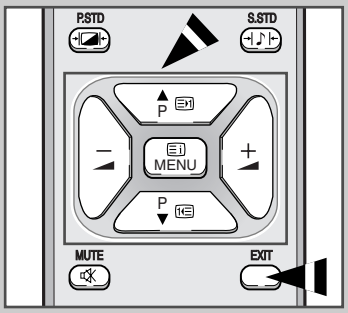
Result: The options available in the **Function** group are displayed.

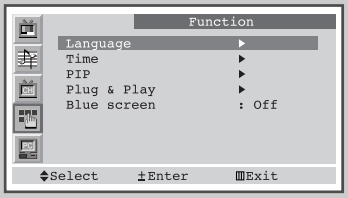
3 Press the **–** or **+** button.

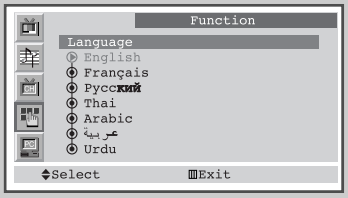
Result: The **Language** is selected.

4 Select a particular language by pressing the **–** or **+** button repeatedly.

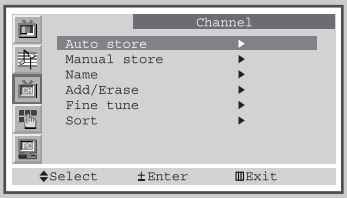
5 When you are satisfied with your choice, press the **EXIT** button to return to normal viewing.

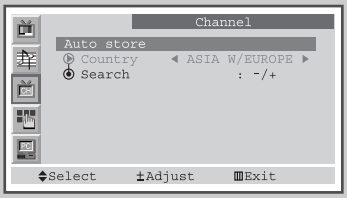


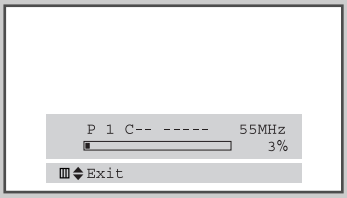




Storing Channels Automatically







You can scan for the frequency ranges available to you (and availability depends on your country). Automatically allocated programme numbers may not correspond to actual or desired programme numbers. However you can sort numbers manually and clear any channels you do not wish to watch.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Channel**.

Result: The options available in the **Channel** group are displayed.

3 Press the **–** or **+** button.

Result: The **Auto store** is selected.

4 Press the **–** or **+** button again.

Result: The options available in the **Auto store** group are displayed with the **Country** is selected.

5 Select your country by pressing the **–** or **+** button repeatedly. The following countries are available:
ASIA W/EUROPE - CIS E/EUROPE - CHINA - HONGKONG U/K - AUSTRALIA - NZ/INDONESIA - SOUTH AFRICA - AMERICA.

6 Press the **P▼** or **P▲** button to select the **Search**, and then press the **–** or **+** button.

Result: The search will end automatically. Channels are sorted and stored in an order which reflects their position in the frequency range, (with lowest first and highest last). The programme originally selected is then displayed.

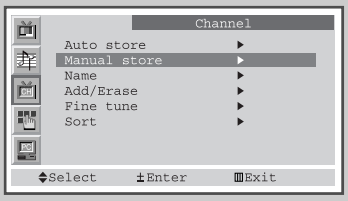
➢ To stop the search before it has finished, press the **EXIT** button.

7 When the channels have been stored, you can:
- Change channels
- Assign a name to the stored channels (refer to page 19)
- Clear a channel (refer to page 20)
- Fine tune channel reception if necessary (refer to page 20)
- Sort them in the order required (refer to page 21)

Storing Channels Manually

You can store up to 100 channels, including those received via cable networks. When storing channels manually, you can choose:

- ***Whether or not to store each of the channels found***
- ***The programme number of each stored channel which you wish to identify***

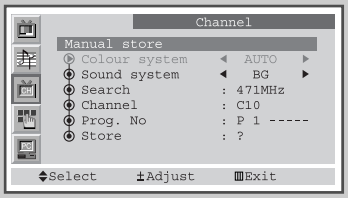


1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Channel**.

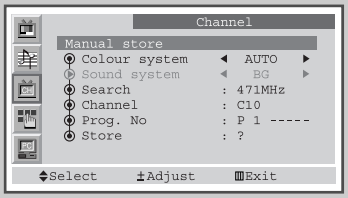
Result: The options available in the **Channel** group are displayed.



3 Press the **–** or **+** button.

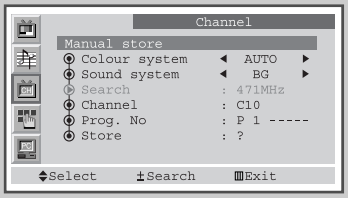
4 Press the **P▼** or **P▲** button to select the **Manual store**. Press the **–** or **+** button.

Result: The options available in the **Manual store** group are displayed with the **Colour system** is selected.



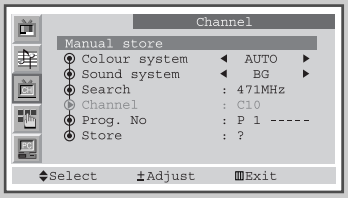
5 If necessary, indicate the broadcasting standard required by pressing the **–** or **+** button repeatedly.

Result: The colour standards are displayed in the following order: **AUTO – PAL – SECAM – NT4.43 – NT3.58**.



6 Press the **P▼** or **P▲** button to select the **Sound system**. Indicate the sound standard required by pressing the **–** or **+** button repeatedly.

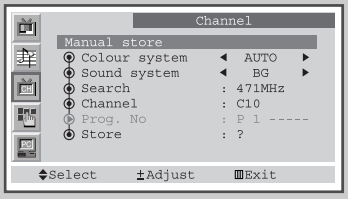
Result: The sound standards are displayed in the following order: **BG – DK – I – M**.



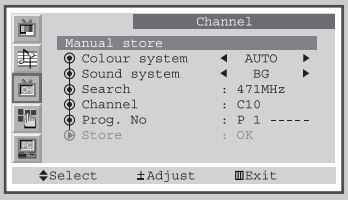
7 If you know the channel number to be stored, press the **P▼** or **P▲** button to select the **Channel**. Indicate the required number by pressing the **–** or **+** button.

If you do not know the channel numbers, press the **P▼** or **P▲** button to select the **Search**. Start the search by pressing the **–** or **+** button.

Result: The tuner scans the frequency range until the first channel or the channel that you selected is received on your screen.



8 To assign a programme number to a channel, select the **Program** by pressing the **P▼** or **P▲** button. Press the **–** or **+** button to find the correct number.

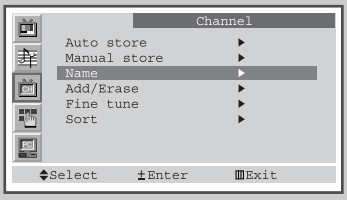


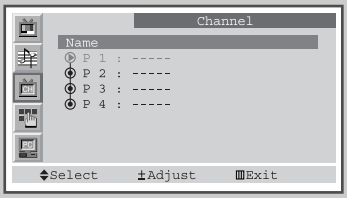
9 Press the **P▼** or **P▲** button to select the **Store**. Select the **OK** by pressing the **–** or **+** button.

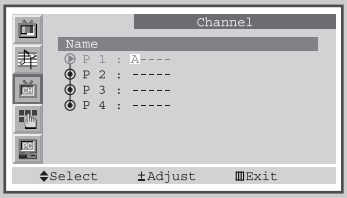
Result: The channel and associated programme number are stored.

10 Repeat Steps **7** to **9** for each channel to be stored.

Giving Channels Names







If channel name information is broadcast when you store the channels either manually or automatically, the names are assigned to the channels directly. You can however change these names or assign new names as required.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Channel**.

Result: The options available in the **Channel** group are displayed.

3 Press the **– ** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Name**. Press the **–** or **+** button.

Result: The current channels are displayed.

5 If necessary, select the channel to be assigned to a new name by pressing the **P▼** or **P▲** button.

6 Press the **–** or **+** button.

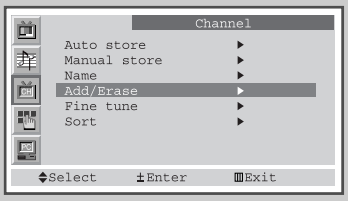
7 Press the **P▼** or **P▲** button to select a letter (A~Z), a number (0~9) or a symbol (-, space). Move on the previous or next letter by pressing the **–** or **+** button.

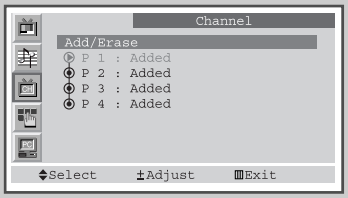
8 Repeat Steps **5** to **7** for each channel to be assigned to a new name.

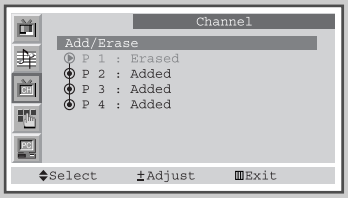
Skipping Unwanted Channels

You can exclude the channels you chosen from the channels you scanned. When you scan through the stored channels, those you have chosen to skip are not displayed.

All channels that you do not specifically choose to skip are displayed during scanning.

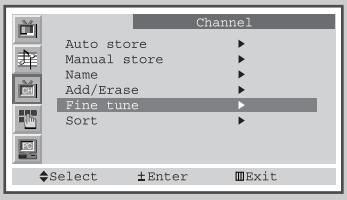


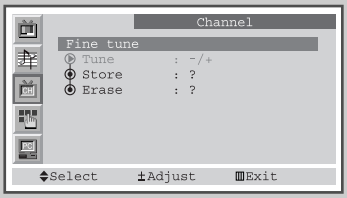


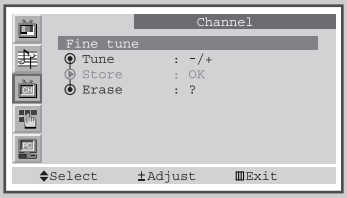


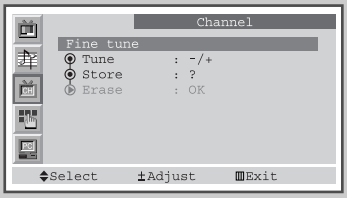
1	Press the **MENU** button. Result: The main menu is displayed.
2	Press the **P▼** or **P▲** button to select the **Channel**. Result: The options available in the **Channel** group are displayed.
3	Press the **–** or **+** button.
4	Press the **P▼** or **P▲** button to select the **Add/Erase**. Press the **–** or **+** button. Result: The stored channels are displayed.
5	Press the **P▼** or **P▲** button to select the channel to add or erase. If necessary, select the **Added** or **Erased** by pressing the **–** or **+** button.
6	Repeat Step **5** for each channel to be added or erased.

Fine Tuning Channel Reception









If the reception is clear, you do not have to fine-tune the channel, as this is done automatically during the search and store operation. If however the signal is weak or distorted, you may have to fine-tune the channel manually.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Channel**.

Result: The options available in the **Channel** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Fine tune**.

5 Press the **–** or **+** button.

Result: The options available in the **Fine tune** group are displayed with **Tune** is selected.

6 To obtain a sharp and clear picture and good sound quality, press the **–** or **+** button.

Result: The horizontal bar is displayed. Move the horizontal bar's cursor left or right by pressing the **–** or **+** button.

7 To memorise adjusted picture or sound, select **Store** by pressing the **P▼** or **P▲** button. Press the **–** or **+** button.

Result: **OK** is displayed.

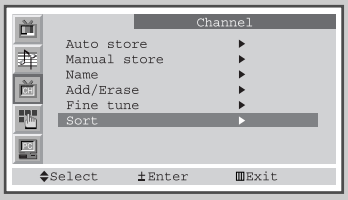
8 To erase adjusted picture or sound, select **Erase** by pressing the **P▼** or **P▲** button. Press the **–** or **+** button.

Result: **OK** is displayed.

Sorting the Stored Channels

You can exchange the numbers of two channels, in order to:

- ***Modify the numeric order in which the channels have been automatically stored.***
- ***Give easily remembered numbers to the channels that you watch most often.***



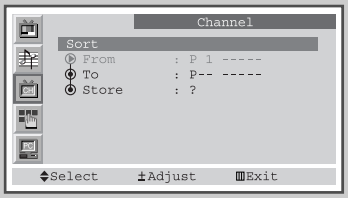
1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Channel**.

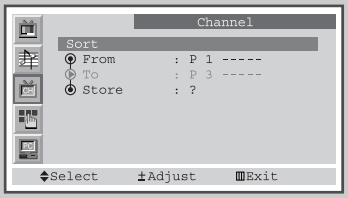
Result: The options available in the **Channel** group are displayed.

3 Press the **–** or **+** button.



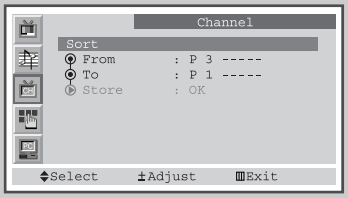
4 Press the **P▼** or **P▲** button to select the **Sort**. Press the **–** or **+** button.

Result: The options available in the **Sort** group are displayed with the **From** is selected.



5 Select the channel number that you wish to change by pressing the **–** or **+** button repeatedly.

6 Press the **P▼** or **P▲** button to select the **To**. Select the new number by which you wish to identify the channel by pressing the **–** or **+** button repeatedly.

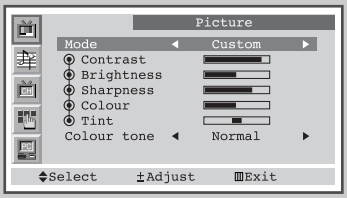


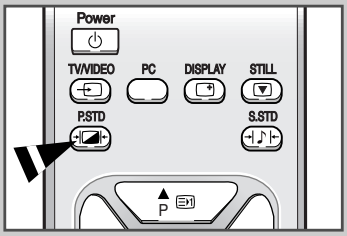
7 Press the **P▼** or **P▲** button to select the **Store**. Select the **OK** to confirm the exchange of channel numbers by pressing the **–** or **+** button.

Result: The selected channel is exchanged with the one previously stored to the chosen number.

6 For all the channels to move to the required channel numbers, repeat steps **5** to **7** after select the **From** by pressing the **P▼** or **P▲** button.

Changing the Picture Standard





You can select the type of picture which best corresponds to your viewing requirements.

1 Press the **MENU** button.
Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Picture**.
Result: The options available in the **Picture** group are displayed.

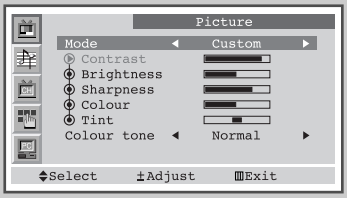
3 Press the **– volume** or **+ volume** button.
Result: The **Mode** is selected.

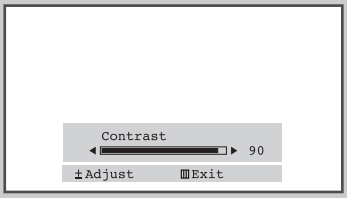
4 Select the required picture effect by pressing the **– volume** or **+ volume** button repeatedly. The following picture effects are available:
Custom – Standard – Dynamic – Movie – Mild.

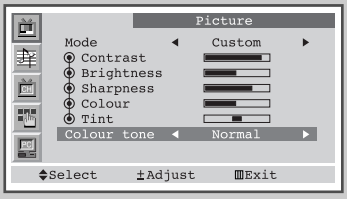
➢ You can also set these options simply by pressing the **P.STD** (Picture Standard) button.

➢ On the **Picture** menu, if you change the **Contrast**, **Brightness**, **Sharpness**, **Colour** or **Tint** (NTSC only) settings, the **Custom** is selected automatically.

Adjusting the Picture Settings







Your television has several settings which allow you to control picture quality.

1 Press the **MENU** button.
Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Picture**.
Result: The options available in the **Picture** group are displayed.

3 Press the **– volume** or **+ volume** button.

4 Select the option (**Contrast**, **Brightness**, **Sharpness**, **Colour** or **Tint**-NTSC only) to be adjusted by pressing the **P▼** or **P▲** button. Press the **– volume** or **+ volume** button.
Result: The horizontal bar is displayed.

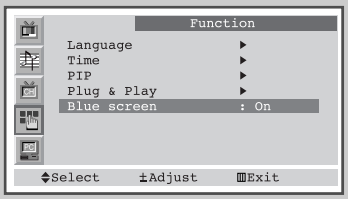
5 Press the **– volume** or **+ volume** button to reach the required setting.

6 Press the **P▼** or **P▲** button to select the **Colour tone**. Select the required option by pressing the the **– volume** or **+ volume** button repeatedly. The following options are available:
Normal – Warm – Cool.

➢ If you make any changes to these settings, the picture standard is automatically switched to **Custom**.

Setting the Blue Screen

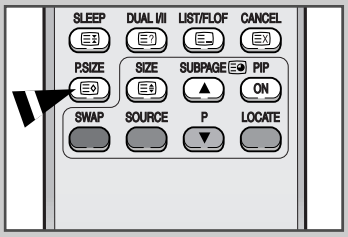
If no signal is being received or the signal is very weak, a blue screen automatically replaces the noisy picture background. If you wish to continue viewing the poor picture, you must set the "Blue screen" mode to "Off".



1	Press the **MENU** button. Result: The main menu is displayed.
2	Press the **P▼** or **P▲** button to select the **Function**. Result: The options available in the **Function** group are displayed.
3	Press the **–** or **+** button.
4	Press the **P▼** or **P▲** button to select the **Blue screen**.
5	Select the required option (**On** or **Off**) by pressing the **–** or **+** button.

Selecting the Picture Format

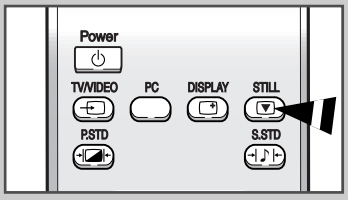
You can select the picture format which best corresponds to your viewing requirements simply by pressing the "P.SIZE" (Picture Size) button. The following picture formats are available:



- **Auto Wide** — The screen format is automatically adjusted when entering a PAL Plus signal (WSS).
- **Wide** — Setting for the 16:9 screen format
- **Panorama** — Sets the picture in 16:9 Wide mode so that it can be shown like the Normal picture. (Not Available in 480p, 720p and 1080i modes.)
- **Zoom** — Expansion of a 16:9 picture to full screen format.
- **4:3** — Setting for normal 4:3 format.

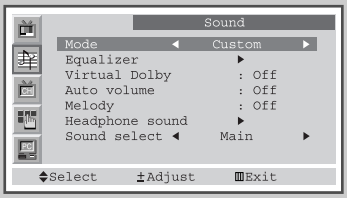
Freezing the Current Picture

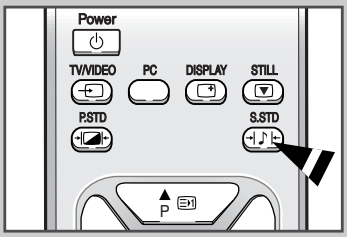
Press the "STILL" button on the remote control to freeze the picture on a given frame. To return to normal viewing, press the "STILL" button again.



➢
- Not Available in PC mode.
- If you press the **STILL** button, after inputting NT4.43, DVD(Component1), or DTV(Component2) signal to the sub picture while the PIP feature is operating, only the main picture will become still.

Changing the Sound Standard





You can select the type of special sound effect to be used when watching a given broadcast.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Sound**.

Result: The options available in the **Sound** group are displayed.

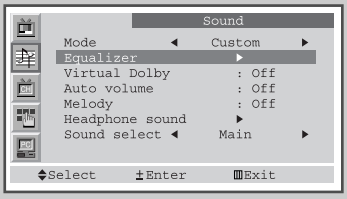
3 Press the **–** or **+** button.

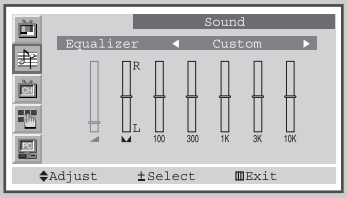
Result: The **Mode** is selected.

4 Select the required sound effect by pressing the **–** or **+** button repeatedly. The following sound effects are available: **Custom – Standard – Music – Movie – Speech**.

➢ You can also set these options simply by pressing the **S.STD** (Sound Standard) button.

Adjusting the Sound Settings





The sound settings can be adjusted to suit your personal preferences.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Sound**.

Result: The options available in the **Sound** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Equalizer**.

Result: The options available in the **Equalizer** group are displayed.

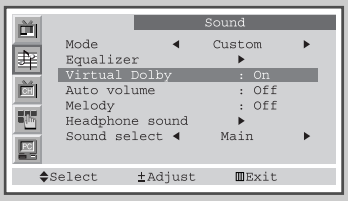
5 Select the option to be adjusted by pressing the **–** or **+** button.

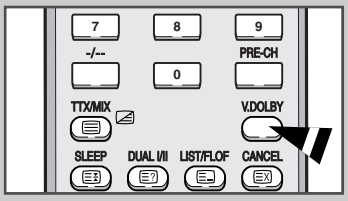
6 Press the **P▼** or **P▲** button to reach the required setting.

➢ If you make any changes to these settings, the sound standard is automatically switched to **Custom**.

Enjoying the Dolby Sound

This feature provides a home theater-like Dolby effect by mixing the left and right speakers.





1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Sound**.

Result: The options available in the **Sound** group are displayed.

3 Press the **–** or **+** button.

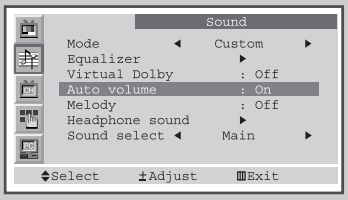
4 Press the **P▼** or **P▲** button to select the **Virtual Dolby**.

5 For enjoying the Dolby sound effect, select the **On** by pressing the **–** or **+** button.

➢ You can also select simply by pressing the **V.DOLBY** (Virtual Dolby) button.

Adjusting the Volume Automatically

Each broadcasting station has its own signal conditions, and so it is not easy for you to adjust the volume every time the channel is changed.* Auto volume *lets you automatically adjust the volume of the desired channel by lowering the sound output when the modulation signal is high or by raising the sound output when the modulation signal is low.



1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Sound**.

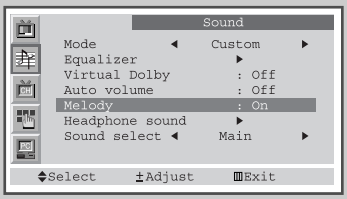
Result: The options available in the **Sound** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Auto volume**.

5 Select the required option (**On** or **Off**) by pressing the **–** or **+** button.

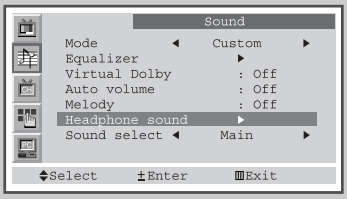
Selecting the Melody sound

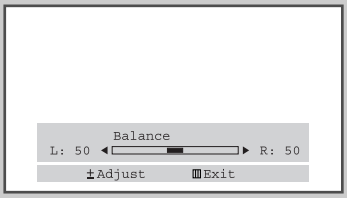


You can hear clear melody sound when the TV is powered on or off.

1	Press the **MENU** button. Result: The main menu is displayed.
2	Press the **P▼** or **P▲** button to select the **Sound**. Result: The options available in the **Sound** group are displayed.
3	Press the **–** or **+** button.
4	Press the **P▼** or **P▲** button to select the **Melody**.
5	Select the required option (**On** or **Off**) by pressing the **–** or **+** button.

Adjusting Your Headphone Preferences





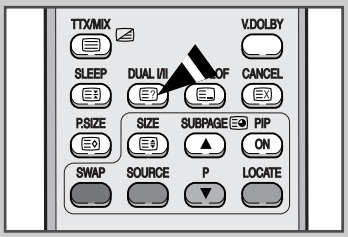
You can adjust the headphone settings to suit your preferences. The following headphone settings are available:

- ***Balance, Bass, Treble.***

1	Press the **MENU** button. Result: The main menu is displayed.
2	Press the **P▼** or **P▲** button to select the **Sound**. Result: The options available in the **Sound** group are displayed.
3	Press the **–** or **+** button.
4	Press the **P▼** or **P▲** button to select the **Headphone sound**.
5	Press the **–** or **+** button. Result: The options available in the **Headphone sound** group are displayed.
6	Select the required option (**Balance**, **Bass** or **Treble**) by pressing the **P▼** or **P▲** button. Press the **–** or **+** button. Result: The horizontal bar is displayed.
7	Press the **–** or **+** button to reach the required setting.

Selecting the Sound Mode

The "DUAL I/II" button displays/controls the processing and output of the audio signal. When power is switched on, the mode is automatically preset to either "Dual-I " or "Stereo", depending on the current transmission.

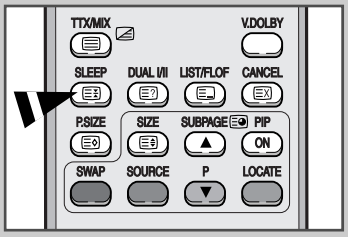


	Audio type	DUAL 1/2	Default
FM Stereo	Mono	**MONO**	Automatic change
	Stereo	**STEREO ↔ MONO**	
	Dual	**DUAL 1 ↔ DUAL 2**	DUAL 1
NICAM Stereo	Mono	**MONO**	Automatic change
	Stereo	**MONO ↔ STEREO**	
	Dual	**MONO → DUAL 1 → DUAL 2 →**	DUAL 1

- If the receiving conditions deteriorate, listening will be easier if the mode is set to the **MONO**.
- If the stereo signal is weak and an automatic switching occurs, then switch to the **MONO**.
- When receiving a mono sound in the AV mode, connect to the "AUDIO(L)" input connector on the rear panel.

Setting the Sleep Timer

You can select a time period of between 30 and 180 minutes after the television automatically switches to Standby mode by pressing the "SLEEP" button.



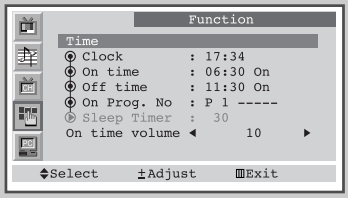
1 Press the **SLEEP** button on the remote control.

Result: If the sleep timer is not yet set, **Sleep Timer Off** is displayed. If the sleep timer is already set, the screen displays the remaining time and then before the television will be placed in standby mode.

2 Press the **SLEEP** button repeatedly and cycle through the preset time intervals (30, 60, 90, 120, 150, 180).

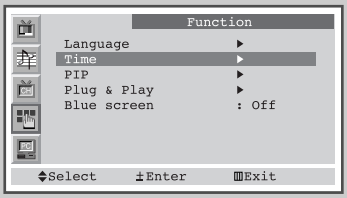
Result: The television automatically switches to standby mode when the timer reaches 0.

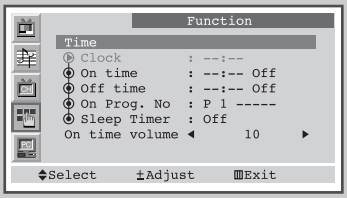
3 To cancel the sleep timer feature, press the **SLEEP** button repeatedly and select **Off**.

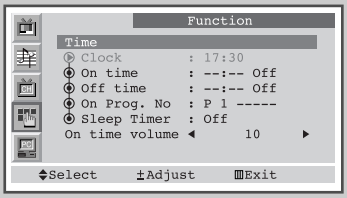


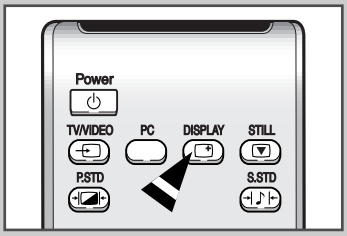
You can also select a time period via the **Sleep Timer** option in the **Time** (in the **Function** group) group.

Setting and Displaying the Current Time









You can set the television's clock so that the current time is displayed by pressing the "DISPLAY" button. You must also set the time if you wish to use the automatic on or off timers.

➢ If you disconnect the power cord and re-connect it, the clock will be reset to the default value.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Function**.

Result: The options available in the **Function** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Time**.

5 Press the **–** or **+** button.

Result: The options available in the **Time** group are displayed with **Clock** is selected.

6 Press the **–** or **+** button to move to the hour or minute. Set the hour or minute by pressing the **P▼** or **P▲** button.

7 When you are satisfied with your choice, press the **EXIT** button to return to normal viewing.

8

To...	Press the "DISPLAY" button...
display the channel information	Once.
display the current time	Twice.
remove the display	Three times.

➢ ***You can view the setting status of selected source by pressing the "DISPLAY" button on the remote control. The displayed information are different depending on the selected source.***

Switching the Television On and Off Automatically

You can set the On/Off timers so that the television will:

- ***Switch on automatically and tune to the channel of your choice at the time you select***
- ***Switch off automatically at the time you select***

➢ The first step is to set the television's clock (refer to "Setting and Displaying the Current Time" on the previous page).

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select **Function**.

Result: The options available in the **Function** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select **Time**.

5 Press the **–** or **+** button.

Result: The options available in the **Time** group are displayed.

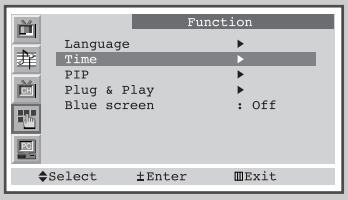
6 Press the **P▼** or **P▲** button to select **On time**. Set the time at which you wish the television to be switched on automatically.

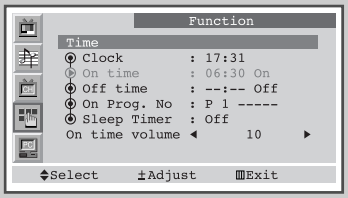
- Press the **–** or **+** button to move to the hour, minute or on/off. Set these by pressing the **P▼** or **P▲** button.

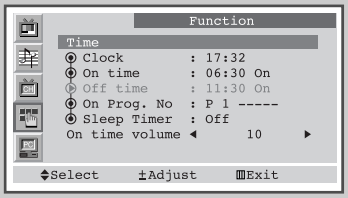
7 Press the **P▼** or **P▲** button to select **Off time**. In the same above, set the time at which you wish the television to be switched off automatically.

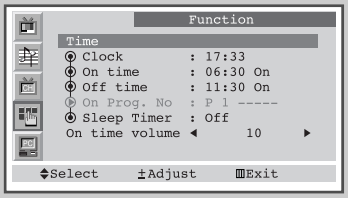
8 If you want set the channel when the television turns on, press the **P▼** or **P▲** button to select **On Prog. No**. Press the **–** or **+** button to select the required channel.

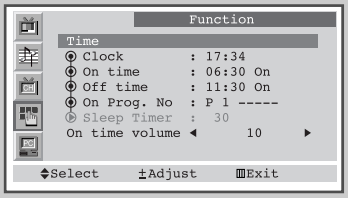
9 If you want set the volume level when the television turns on, press the **P▼** or **P▲** button to select **On time volume**. Press the **–** or **+** button to adjust the volume level.

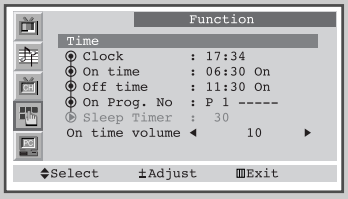




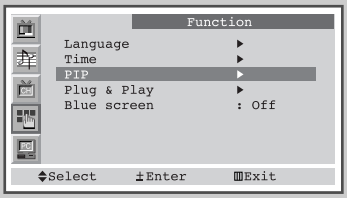


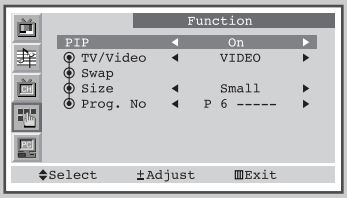


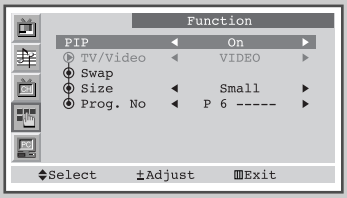


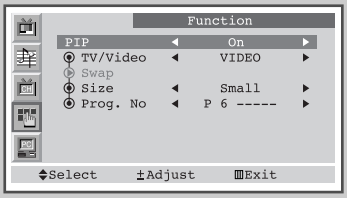


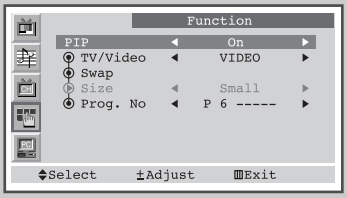
Viewing the Picture In Picture (PIP)

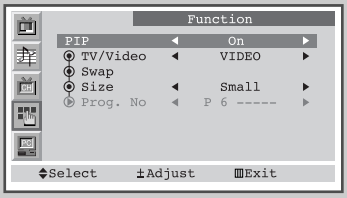












You can display a sub picture within the main picture of TV program or external A/V devices such as VCR or DVD. In this way you can watch TV program or monitor the video input from any connected devices while watching TV or other video input.

1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Function**.

Result: The options available in the **Function** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **PIP**. Press the **–** or **+** button.

Result: The options available in the **PIP** group are displayed.

5 Select the **On** by pressing the **–** or **+** button.

6 Press the **P▼** or **P▲** button to select the **TV/Video**. Select a source of the sub picture by pressing the **–** or **+** button.

Result: The sources are displayed in the following order: **TV – VIDEO – S-VIDEO – COMP1 – COMP2**.

7 Press the **P▼** or **P▲** button to select the **Swap**. Press the **–** or **+** button.

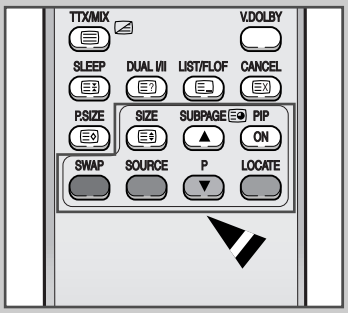
Result: The main picture and the sub picture are interchanged.

8 Press the **P▼** or **P▲** button to select the **Size**. Select a size of the sub picture by pressing the **–** or **+** button.

Result: The sizes are displayed in the following order: **Small – Double Screen 1 – Double Screen 2**.

9 Press the **P▼** or **P▲** button to select the **Prog. No**. Select the channel that you want to view through sub picture by pressing the **–** or **+** button.

Viewing the Picture In Picture (PIP)



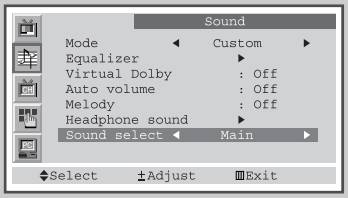
Easy functions of remote control

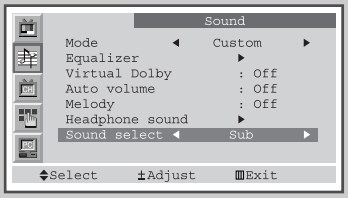
Buttons	Feature
PIP ON	Used to activate or deactivate the PIP function directly.
SWAP	Used to interchange the main picture and the sub picture. ➢ When the main picture is in the Video mode and the sub picture is in the TV mode, you might not hear the sound of main picture when pressing the **SWAP** button after changing the sub picture channel. At this time, reselect the main picture channel. ➢ Not available in PC Mode.
LOCATE	Used to move the sub picture counterclockwise.
P▲/▼	Used to select the channel of sub picture.
SIZE	Used to select a size of sub picture (**Double Screen1, Double Screen2, Small**). ➢ The PC Mode can be setup in the main picture only, and the size of the sub picture will not change.
SOURCE	Used to assign a source of sub picture (**TV, VIDEO, S-VIDEO, COMP1, COMP2**).

Selecting the PIP Sound

You can hear the sound of sub picture.

➢ ***The sound of sub picture can be selected only while the PIP function is operating.***





1 Press the **MENU** button.
Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **Sound**.
Result: The options available in the **Sound** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Sound select**.

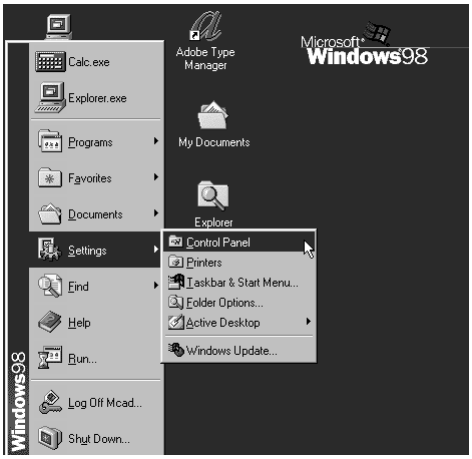
5 To hear the sound of sub picture, select **Sub** by pressing the **–** or **+** button.

Setting up Your PC Software (Based on Widows 98)

The Windows display-settings for a typical computer are shown below. But the actual screens on your PC will probably be different, depending upon your particular version of Windows and your particular video card. But even if your actual screens look different, the same, basic set-up information will apply in almost all cases. (If not, contact your computer manufacturer or Samsung Dealer.)

1 First, click on "**Settings**" on the Windows start menu.

While "**Settings**" is highlighted, move the cursor so that "**Control Panel**" is highlighted.

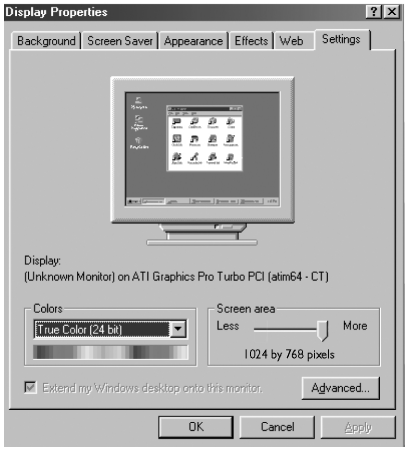


2 When the control panel screen appears, click on "**Display**" and a display dialog-box will appear.

3 Navigate to the "**Settings**" tab on the display dialog-box.

The correct setting of size (resolution) is "**1024 x 768 pixels**".

If a vertical-frequency option exists on your display settings dialog box, the correct value is "**60**" or "**60 Hz**". Otherwise, just click "**OK**" and exit the dialog box.

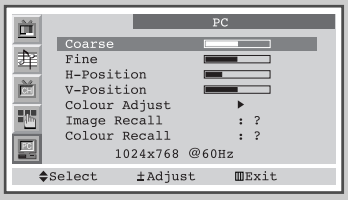


➢ Only black signal is output from a monitor in PC mode.

Adjusting the Screen Quality

➢ Preset to the PC mode by pressing the **SOURCE** button.

This feature is used to fine tune and get the best image by removing noises that create unstable images with jitters and shimmers.



1 Press the **MENU** button.

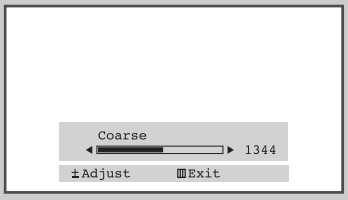
Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **PC**.

Result: The options available in the **PC** group are displayed.

3 Press the **–** or **+** button.

Result: The **Coarse** is selected.



4 Select the option (**Coarse** or **Fine**) to be adjusted for the colour of your computer image by pressing the **P▼** or **P▲** button. Press the **–** or **+** button.

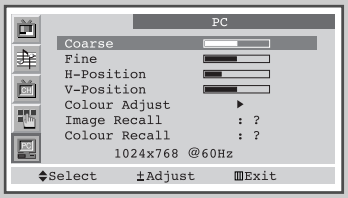
Result: The horizontal bar is displayed.

5 Press the **–** or **+** button to reach the required setting.

➢ This feature may change the width of the image. If necessary, adjust the position to center.

Changing the Screen Position

➢ Preset to the PC mode by pressing the **SOURCE** button.



1 Press the **MENU** button.

Result: The main menu is displayed.

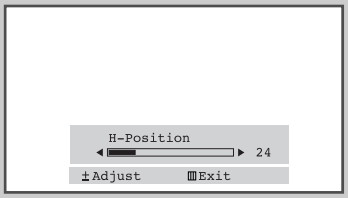
2 Press the **P▼** or **P▲** button to select the **PC**.

Result: The options available in the **PC** group are displayed.

3 Press the **–** or **+** button.

4 Select the option (**H-Position** or **V-Position**) to be adjusted by pressing the **P▼** or **P▲** button. Press the **–** or **+** button.

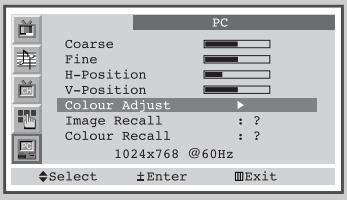
Result: The horizontal bar is displayed.

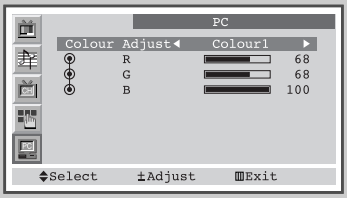


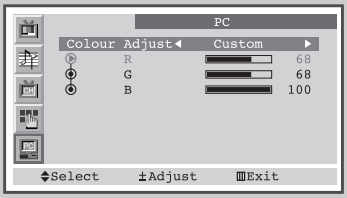
5 Press the **–** or **+** button to reach the required setting.

Adjusting the Screen Colour

➢ Preset to the PC mode by pressing the **SOURCE** button.







1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **PC**.

Result: The options available in the **PC** group are displayed.

3 Press the **–** or **+** button.

4 Press the **P▼** or **P▲** button to select the **Colour Adjust**. Press the **–** or **+** button.

Result: The options available in the **Colour adjust** group are displayed.

5 Select the required colour mode by pressing the **–** or **+** button repeatedly. The following colour modes are available: **Custom – Colour 1 – Colour 2 – Colour 3**.

6 If you wish adjust the colour which best corresponds to your viewing requirements, select the option (**R**-Red, **G**-Green, or **B**-Blue) to be adjusted by pressing the **P▼** or **P▲** button.
Press the **–** or **+** button.

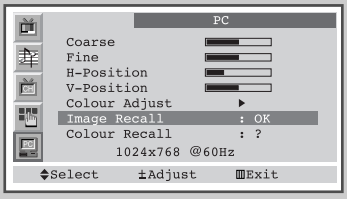
Result: The horizontal bar is displayed.

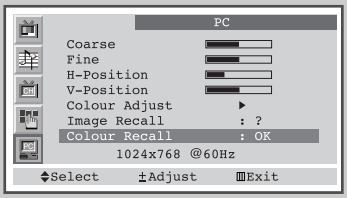
7 Press the **–** or **+** button to reach the required setting.

➢ If you change the **R** (Red), **G** (Green), or **B** (Blue) settings, the **Colour Adjust** is selected to **Custom** automatically.

Initializing the Screen Settings

➢ Preset to the PC mode by pressing the **SOURCE** button.





1 Press the **MENU** button.

Result: The main menu is displayed.

2 Press the **P▼** or **P▲** button to select the **PC**.

Result: The options available in the **PC** group are displayed.

3 Press the **–** or **+** button.

4 Select the option (**Image Recall** or **Colour Recall**) to be replaced by pressing the **P▼** or **P▲** button. Press the **–** or **+** button.

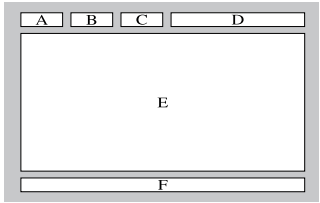
Result: **OK** is displayed the screen settings are initialized.

Teletext Feature

Most television channels provide written information services via teletext. Information provided includes:

- ***Television programme times***
- ***News bulletins and weather forecasts***
- ***Sports results***
- ***Travel information***

This information is divided into numbered pages (see diagram).



Part	Contents
A	Selected page number.
B	Broadcasting channel identity.
C	Current page number or search indications.
D	Date and time.
E	Text.
F	Status information. FASTEXT information.

➢ Teletext information is often divided between several pages displayed in sequence, which can be accessed by:

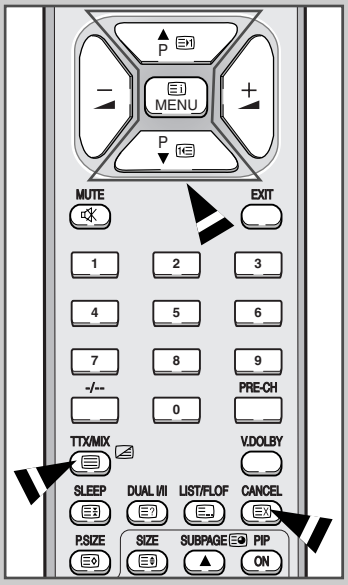
- Entering the page number
- Selecting a title in a list
- Selecting a coloured heading (FASTEXT system)

Displaying the Teletext Information

You can display Teletext information at any time on your television.

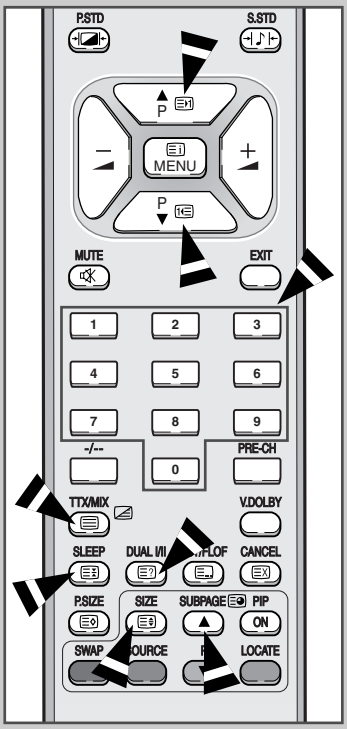
☛ For Teletext information to be displayed correctly, channel reception must be stable; otherwise:

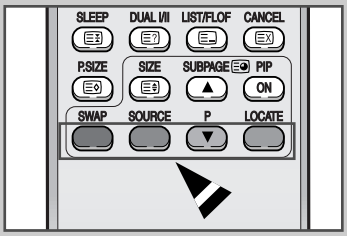
- Information may be missing
- Some pages may not be displayed



1	Select the channel providing the Teletext service using the **P▼** or **P▲** button.
2	Press the **TTX/MIX** button to activate the teletext mode. Result: The contents page is displayed. It can be redisplayed at any time by pressing the (index) button.
3	If you wish to display the actual broadcast at the same time as the teletext page, press the **TTX/MIX** button again.
4	To return to normal viewing, press the **CANCEL** () button.
5	Press the **TTX/MIX** button again to exit from the teletext display.

Selecting a Page by Number





You can enter the page number directly by pressing the numeric buttons on the remote control.

1 Enter the three-digit page number given in the content by pressing the corresponding numeric buttons.

Result: The current page counter is incremented and the page is then displayed.

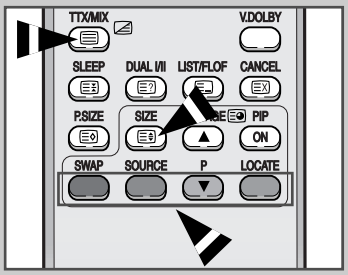
2 If the selected page is linked with several secondary pages, the secondary pages are displayed in sequence. To freeze the display on a given page, press the **HOLD** (📄) button. Press the **HOLD** (📄) button again to resume.

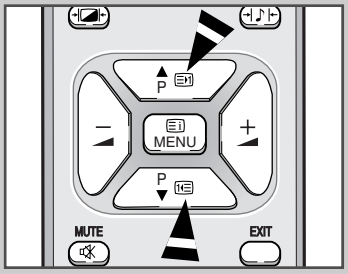
Using the various display options:

To display...	Press the...
◆ Both teletext information and the normal broadcast	**TTX/MIX**
◆ Hidden text (answers to quiz games, for example)	📄? (reveal)
◆ The normal screen	📄? (reveal) again
◆ A secondary page, by entering its 4-digit number	**SUBPAGE** 📄
◆ The next page	📄 (page up)
◆ The previous page	📄 (page down)
◆ Double-size letters in the: • Upper half of the screen • Lower half of the screen	**SIZE** (📄) • Once • Twice
◆ Normal screen	• Three times

Using FLOF to Select a Page

The various topics included in the teletext pages are colour-coded, and can be selected by pressing the coloured buttons on the remote control.





1 Display the teletext contents page by pressing the **TTX/MIX** button.

2 Press the coloured button corresponding to the topic that you wish to select;the available topics are given on the status line.

Result: The page is displayed with other coloured information that can be selected in the same way.

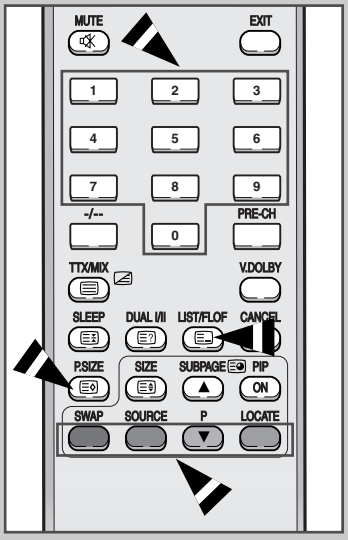
3 To display the previous or next page, press the corresponding coloured button.

4 To display the subpage, see the following steps.

- Press the **SUBPAGE** button.
  Result: The available subpages appear.
- Select the required sub-page. Sub-pages can be scrolled by using the (**P▼**) or (**P▲**) button.

Storing Teletext Pages

You can store up to four teletext pages to display them later at leisure.



1 Select the LIST mode using the **LIST/FLOF** () button.

Result: Four 3-digit numbers are displayed in different colours.

➢ The **LIST/FLOF** () button is used to switch between the LIST and FLOF modes.

2 Press the coloured button corresponding to the page that will be replaced.

3 Enter the new page number using the numeric buttons.

4 Repeat steps **2** and **3** for each page to be stored, using a different coloured button each time.

5 Press the (store) button until the corresponding blocks blink.

Troubleshooting: Before Contacting Service Personnel

Before contacting Samsung after-sales service, perform the following simple checks.
If you cannot solve the problem using the instructions below, note the model and serial number of your television and contact your local dealer.

No sound or picture	◆ Check that the mains lead has been connected to a wall socket. ◆ Check that you have pressed the **POWER** (⏻) button. ◆ Check the picture contrast and brightness settings. ◆ Check the volume.
Normal picture but no sound	◆ Check the volume. ◆ Check whether the **MUTE** button has been pressed on the remote control.
No picture or black and white picture	◆ Adjust the colour settings. ◆ Check that the broadcast system selected is correct.
Sound and picture interference	◆ Try to identify the electrical appliance that is affecting the television and move it further away. ◆ Plug your television into a different mains socket.
Blurred or snowy picture, distorted sound	◆ Check the direction, location and connections of your aerial. This interference is often due to the use of an indoor aerial.
Remote control malfunctions	◆ Replace the remote control batteries. ◆ Clean the upper edge of the remote control (transmission window). ◆ Check the battery terminals.
"Check Signal Cable" message is displayed.	◆ Check that the signal cable is firmly connected to the PC or video sources. ◆ Check that the PC or video sources are turned on.
On PC mode, "Not Supported Mode" message is displayed.	◆ Check the maximum resolution and the frequency of the video Adapter. ◆ Compare these values with the data in the Display Modes Timing Chart.
On PC mode, horizontal or vertical bars appear to flicker, jitter or shimmer on the image.	◆ Adjust the Coarse or Fine function.
On PC mode, screen is black and power indicator light is steady amber or blinks every 0.5 or 1 seconds	◆ The TV is using its power management system. ◆ Move the computer's mouse or press a key on the keyboard.
On PC mode, image is not stable and may appear to vibrate.	◆ Check that the display resolution and frequency from your computer or video board is an available mode for your set. On your computer check: Control Panel, Display, Settings. ◆ If the setting is not correct, use your computer utility programme to change the display settings. ➢ Your set supports multiscan display functions within the following frequency domain: **Horizontal frequency:** 30 ~ 61 kHz **Vertical frequency:** 56 ~ 75 Hz **Maximum refresh rate:** 1280 x 768 @60Hz
On PC mode, image is not centered on the screen.	◆ Adjust the horizontal and vertical position.
You need the Monitor driver software.	◆ Download the driver from WWW pages: **http://www.samsung-monitor.com** **http://www.samsungusa.com/monitor** (USA Only)

Power Saver

This set has a built-in power management system called PowerSaver. This system saves energy by switching your set into a low-power mode when it has not been used for a certain period of time. The available modes are "On", "Standby", "Sleep", and "Deep Sleep". PowerSaver operates with a VESA DPMS compliant video card installed in your computer. You use a software utility installed on your computer to set up this feature.

State	Normal Operation	Power-Saving Function mode (EPA/NUTEK)
Horizontal Sync	Active	Inactive
Vertical Sync	Active	Inactive
Power Indicator	Black	Green, Blinking (1 sec interval)
Power Consumption	LS15N13W : 43W (Max.) LS17N13W : 49W (Max.)	Less than 1.5W

➢ ***This set automatically returns to normal operation when horizontal and vertical sync return. This occurs when you move the computer's mouse or press a key on the keyboard.***

Technical and Environmental Specifications

Model	LS15N13W	LS17N13W
Panel		
Size	38.86cm Diagonal	43.18cm Diagonal
Display Size	334.08 (H) x 200.448 (V) mm	370.56 (H) x 222.336 (V) mm
Type	a-si TFT active matrix	
Pixel Pitch	0.261 (H) x 0.261 (V) mm	0.2895 (H) x 0.2895 (V) mm
Viewing Angle	75/75/60/60 (L/R/T/B)	
Frequency		
Horizontal	30 ~ 61 kHz	
Vertical	56 ~ 75 Hz	
Display Colour	16,777,216 colours	
Display Resolution		
Optimum Mode	1024 x 768 @ 60 Hz	
Maximum Mode	1280 x 768 @ 60 Hz	
Input Signal		
Sync.	H/V Separate, TTL, P. or N.	
Video Signal	0.7 Vp-p @ 75 ohm	
TV		
Colour System	PAL, SECAM, NT4.43, NT3.58	
Sound System	B/G, D/K, I, M	
Video		
Colour System	PAL, NTSC, SECAM	
Video Format	CVBS, S-VHS	
Component		
DVD (Component 1)	YPbPr Composite sync, 480i	
DTV (Component 2)	YPbPr Composite sync, 480p, 576p(50Hz), 720p, 1080i, 1080i(50Hz)	
Video Input	1.0 Vp-p @ 75 ohm	
Audio Input	500mVrms	
Power Supply		
Input	AC 100 ~ 240 V, 1.3 ~ 0.6A (50Hz / 60Hz)	
Output	DC 14V/3.5A	
Power Consumption		
Maximum	43 W	49 W
Power Saving	< 1.5 W	
Dimensions (W x D x H)		
Television Body	498 x 56.7 x 295.7 mm	536 x 56.7 x 322.7 mm
With stand	498 x 204 x 374 mm	536 x 204 x 402 mm
Weight	4.6 kg	5.3 kg
Environmental Considerations		
Operating Temperature	50 °F to 104 °F (10 °C to 40 °C)	
Operating Humidity	10% to 80%	
Storage Temperature	- 13 °F to 113 °F (-25 °C to 45 °C)	
Storage Humidity	5% to 95%	
Audio Characteristics		
Audio Input	RCA Jack (L, R), 0.5Vrms (-9dB)	
Audio Input (PC)	3.5Ø Stereo Jack, 0.5Vrms (-9dB)	
Headphone Output	Max. 10mW Output (3.5Ø Stereo Jack, 32Ω)	
Frequency	RF: 80Hz ~ 15kHz (at- 3dB)	
Response	A/V: 80Hz ~ 20kHz (at- 3dB)	

Display Modes

If the signal from the system equals to the standard signal mode, the screen is adjusted automatically. If the signal from the system doesn't equal to the standard signal mode, adjust the mode with referring to the Video card user guide because the screen might not display or only the power LED might be on. For the display modes listed below, the screen image has been optimized during manufacture.

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H/V)
MAC	640 x 480	31.469	59.940	25.175	– / –
	640 x 480	33.000	66.667	30.240	– / –
	800 x 600	47.726	74.551	57.284	– / –
IBM	720 x 400	31.469	70.087	28.322	– / +
VESA	640 x 480	37.861	72.809	31.500	– / –
	640 x 480	37.500	75.000	31.500	– / –
	800 x 600	37.879	60.317	40.000	+ / +
	800 x 600	480.77	72.188	50.000	+ / +
	800 x 600	46.875	75.000	49.500	+ / +
	1024 x 768	48.363	60.004	65.000	– / –
	1024 x 768	56.476	70.069	75000	– / –
	1024 x 768	60.023	75.029	78.750	+ / +
GTF	1280 x 768	47.700	60.000	80.136	– / –

Maintenance of Your Television

To avoid risk of electric shock, do not disassemble the TV cabinet (except for gaining access to the cable connectors as described on page 7). Users cannot service the TV. User maintenance is restricted to cleaning as explained below:

Unplug the television from the power outlet before cleaning.

- When you clean the TFT-LCD and the panel outside, please apply the recommended small amount of cleaner by using soft and dry cloth and polish it. Let your television screen not to be forced but to be scrubbed out softly. If excessive force is applied, you can have a stain on it.
- Never use flammable cleaning material to clean your television or any other electrical apparatus.

– AFTER SALES SERVICE

– Do not hesitate to contact your retailer or service agent if a change in the performance of your product indicates that a faulty condition may be present.

SAMSUNG ELECTRONICS

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